

Dick Henderson Bridge

ACBR-0025(091)TC S320-P25-0.05 00

Meeting Minutes Summary

Meeting was voice recorded by Karen Zamow.

Meeting April 16th @ 2:30pm

Attendees:

Paul A. Mattox, Jr., Secretary of Transportation/Commissioner of Highways, VE Board Chair
Robert Pennington, Director Program, Planning and Administration Division, Voting Member
Greg Bailey, Engineering Division, Voting Member
Jimmy Wriston, Special Projects Engineer, Voting Member
Gary Mullins, D-1 Construction, Voting Member

Presenters from Ahern, A Division of Kokosing Construction Company:

Gene Thompson, Mike Koelbl, and Kevin Ohl

Also present were Jason Griffin of Menard USA and Keith Brabant of Reinforced Earth Company.

Other attendees were:

Marvin Murphy, State Highway Engineer
Aaron Gillispie, Director MCS&T
Stephen "Todd" Rumbaugh, Director Contract Administration – left after presentation
Jason Boyd, Regional Construction Engineer
Shawn Smith, District 1 Construction Area Engineer
Ahmed Mongi, Engineering Division
Joe Carte, Engineering Division
Ed Compton, FHWA
Mike Clowser and Pat McDonald, WV Contractors Association

The meeting was opened by the Secretary with introductions of all those attending. A presentation was given by Ahern, A Division of Kokosing and Menard USA detailing the VEP (see below). Questions were asked by those in attendance and answered by Ahern, A Division of Kokosing and Menard USA.

Greg Bailey made a general comment that Engineering Division has no objection to the use of Controlled Modulus Columns (CMCs) with a "conventional" MSE wall (VE proposed) in lieu of the Expanded Polystyrene Fill (EPS) MSE wall (as depicted in the contract plans) and that the use of CMCs were considered in the design phase of the project (and rejected, among other reasons, due to archeological concerns). The WVDOH has made environmental commitments to WVSHPO concerning the potential for "archaeological findings" at the project site and therefore WVSHPO will also have to "approve" the use of CMCs if the VE proposal is determined to be acceptable to the VE Board. Ahern stated the VEP involves as much or less excavation as the contract plan alternative which would, if anything, it

decreases the chance of encountering artifacts. Engineering Division does however have "review" comments (such as requiring the full pavement typical over the moment slabs) which can be resolved. Also the use of bottom ash as select granular backfill for the proposed MSE wall was discussed and its potential use may need approval from the WVDEP.

Joe Carte inquired if "heave" was a concern with the use of CMCs especially at structures or utilities. Menard responded that "heave" will be accounted for in the design and that in other projects that utilized CMCs it was not an issue. Ahern also proposed to monitor the Nissan building adjacent to the MSE wall for movement.

District One Construction inquired if the retained fill outside of the reinforcing zones of the VEP MSE wall was included in the cost of the wall and Ahern stated that it was. Jason Boyd also inquired if the reduced risk of archeological findings would translate into a time savings and/or increased cost savings due to the greater opportunity for Ahern to earn a larger portion of the incentive bonus. Ahern's reply was that the VEP was a "time-neutral" proposal and that no additional time savings was included.

Ed Compton commented the VEP costs need reviewed and a more detailed breakdown should be submitted. Also design standards and specifications for the installation of the CMCs are needed.

Jimmy Wriston made a motion to approve the VEP contingent on submission and concurrence with WVSHPO. Greg Bailey then seconded the motion. The Secretary then called for a vote. The VEP was approved with unanimous vote. Meeting adjourned.

Value Engineering Proposal for the Dick Henderson Bridge Project

State Project S320-P25-0.05 00 // Federal Project ACBR-0025(091) TC
Kanawha County, West Virginia

Presented to the West Virginia Department of Highways
April 16, 2012



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Introduction



Gene Thompson – Vice President
Mike Koelbl – Assistant Vice President
Kevin Ohl, P.E. – Senior Structures Estimator



Jason Griffin, P.G. – Estimating Manager



Keith Brabant, P.E. – Regional Manager

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Introduction

Thank You for considering this Value Engineering Proposal

- Kokosing has teamed with Menard and RECO to provide an approach roadway alternate that:
 - Has no reduction in design capacity
 - Provides a quality final product
 - Constructs a known MSE wall system
 - Reduces potential project delays
 - Reduces long term risk and maintenance by the Department
 - Saves the Department money
- Menard and RECO are affiliates
 - Provides seamless design and delivery between the ground improvements and the MSE walls

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Proposal

Contract Plans

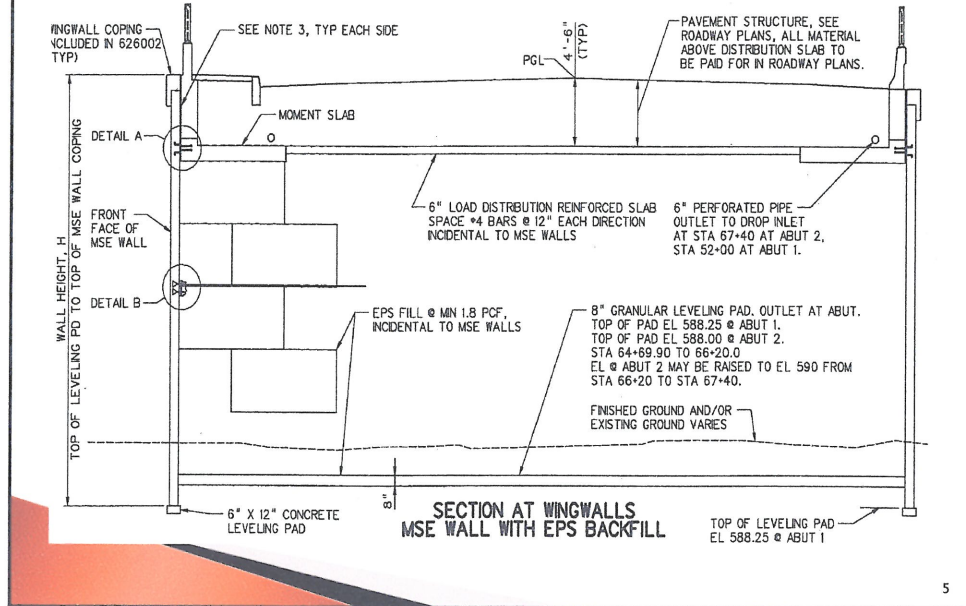
- Expanded Polystyrene Fill (EPS) within the MSE wall reinforced zone
- Lightweight material
- Decreases potential settlement and downdrag of adjacent structures

Value Engineering Proposal (VEP)

- Improve underlying soils by installing Controlled Modulus Columns (CMCs)
 - Semi-rigid columns installed using a displacement auger
 - Virtually no spoils or vibrations
- Construct conventional MSE wall with Select Granular Backfill
- Eliminate the EPS Fill

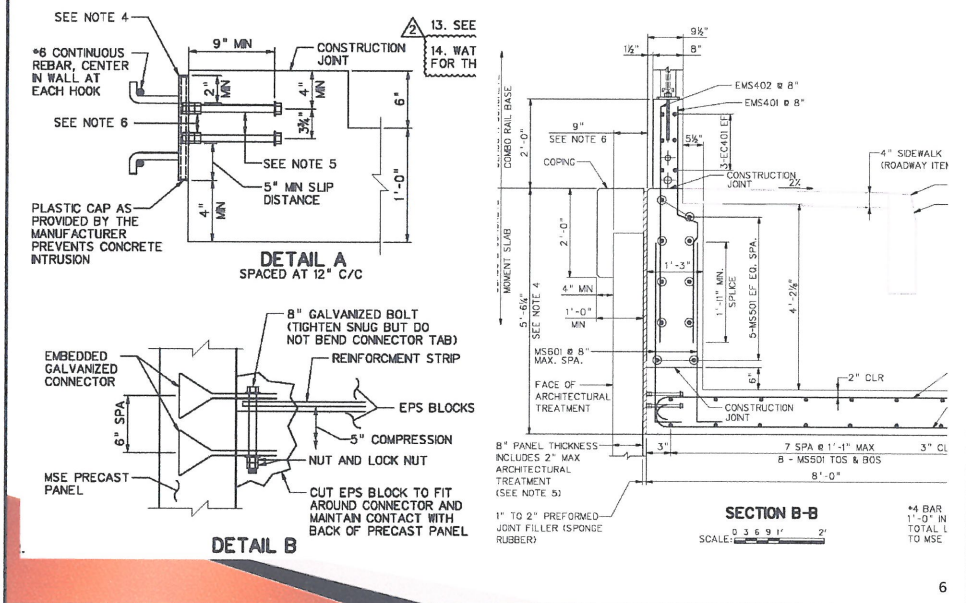
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Contract Plans



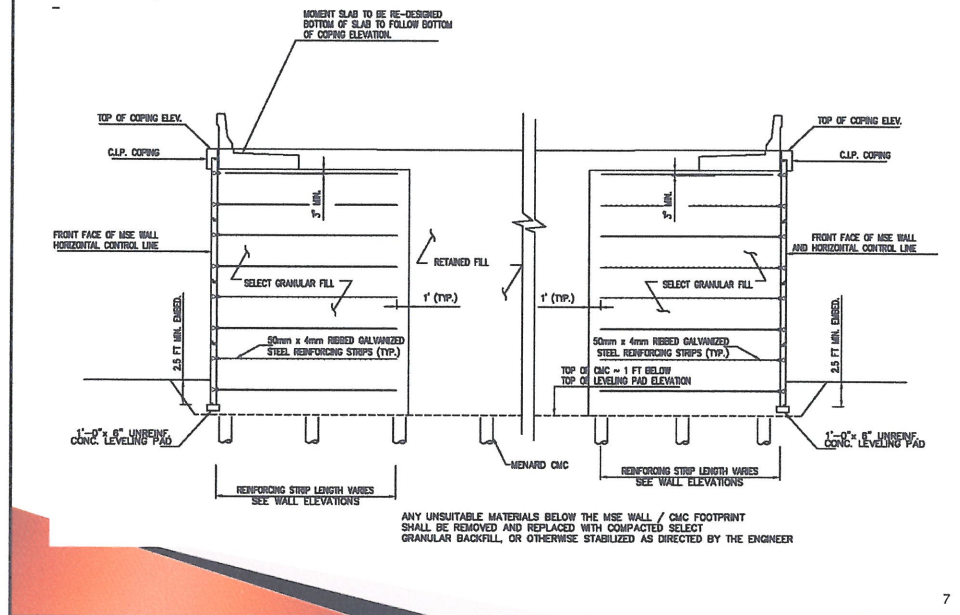
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Contract Plans



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Proposed Plan



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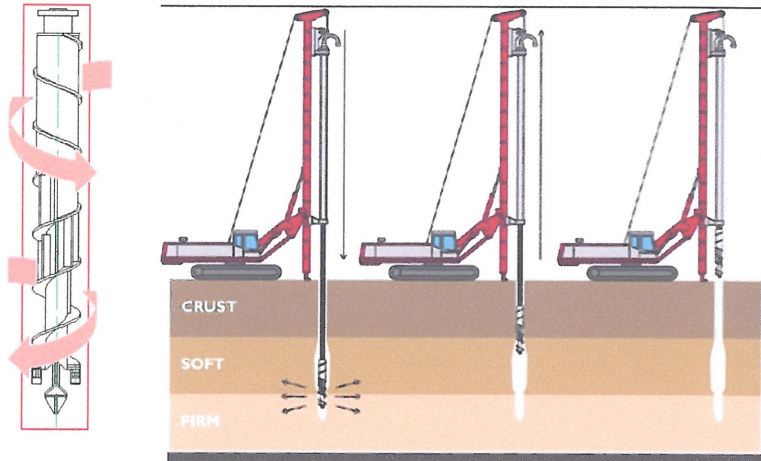
Controlled Modulus Columns

CMC's

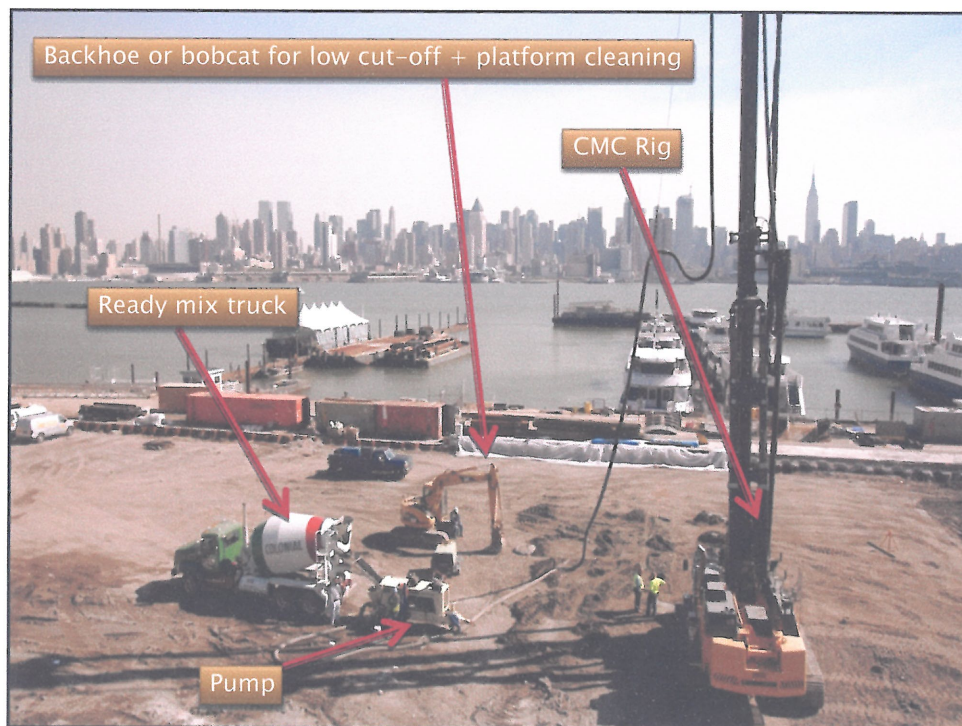
- Semi-rigid columns
 - Specially designed Grout Mix
- Composite soil/cement ground improvement system
 - Reinforces the soil rather than functioning as distinct structural elements
 - Increases stiffness of soil mass globally
 - Controls settlement
 - Increased bearing capacity

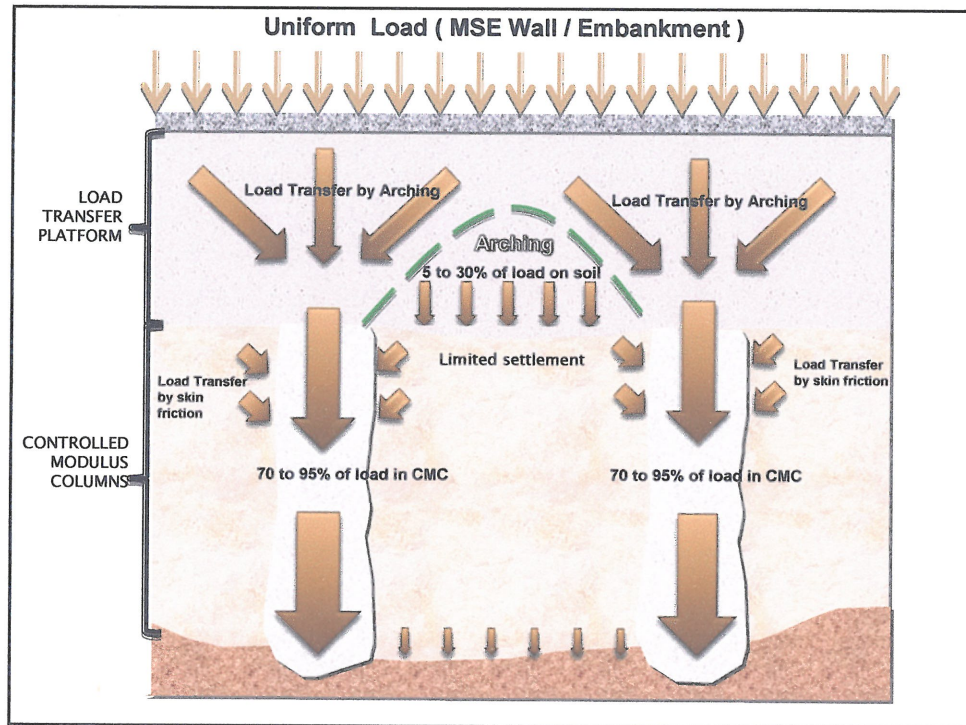
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Controlled Modulus Columns

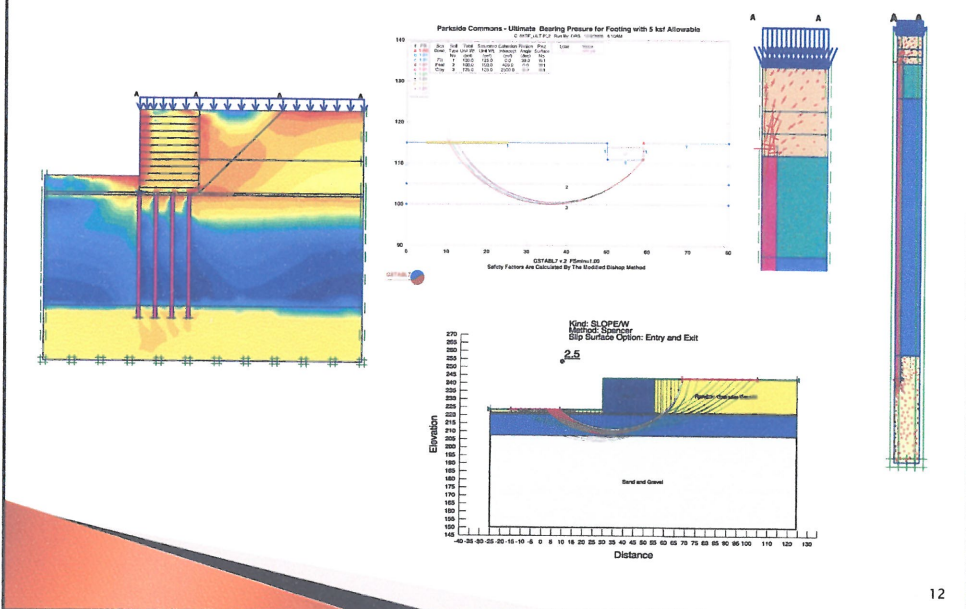


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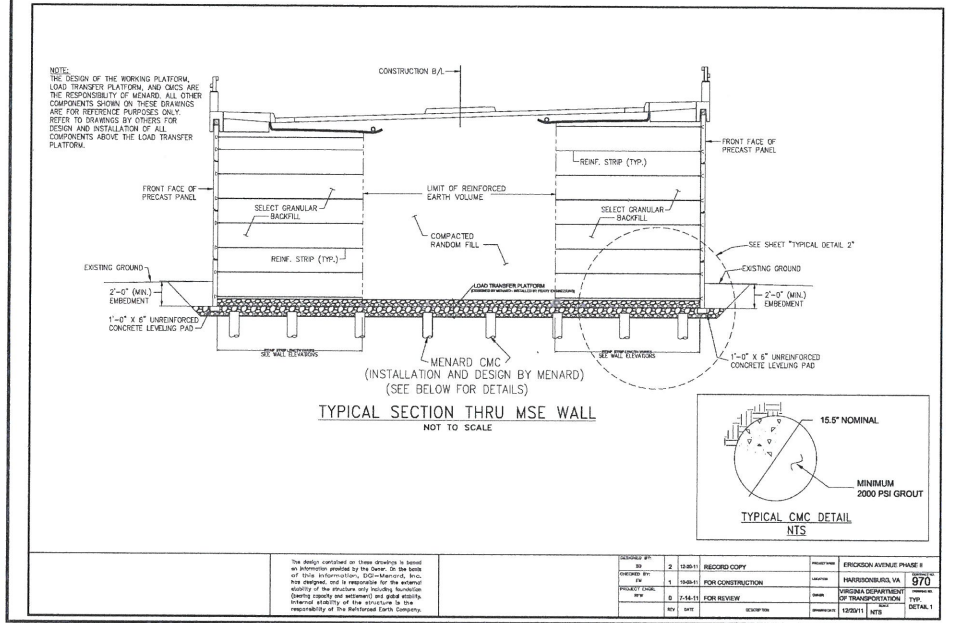




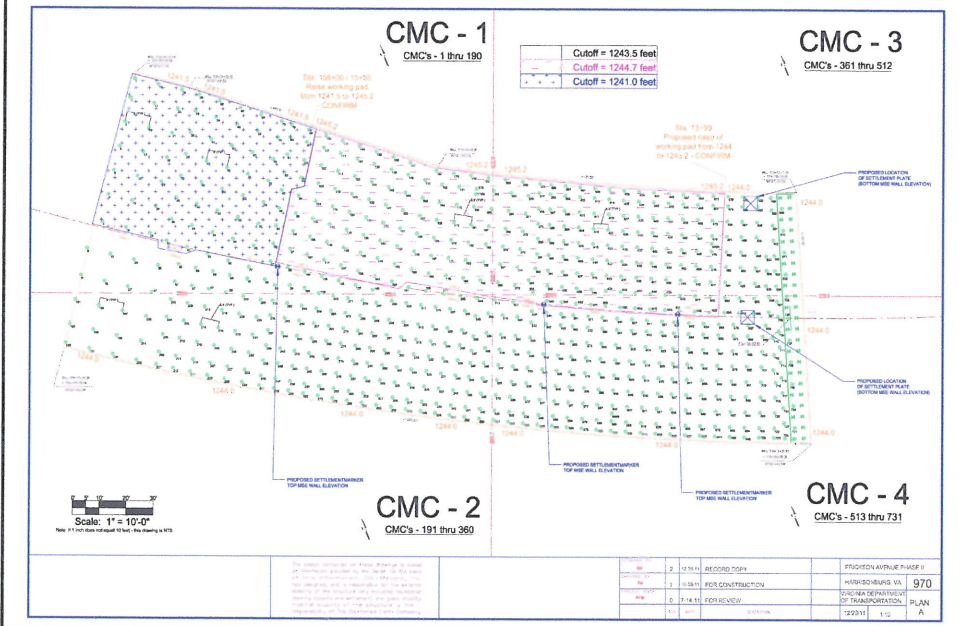
Controlled Modulus Columns



CMC Case History



Controlled Modulus Columns



[illegible]

Erickson Avenue Phase II Construction	Harrisonburg, VA	12/9/2011	Completed	City of Harrisonburg	Perry Engineering Company, Inc.	1511 CMCs on two sides of bridge abutment. Supporting Reco walls and backfill material
Bass River - GSP	Bass River, NJ		In Progress	New Jersey Turnpike Authority	Northeast Remaco Construction, Inc.	Estimated 1500 CMCs to support Reco wall
NJ Turnpike 6 9 Widening - NSQ/END	Springfield, NJ	6/30/2011	Completed	NJ Turnpike	JEV Construction	1,300 CMCs supporting RECO walls
NIDOT Rt. 52 Contract B	Ocean City, NJ	12/9/2009	Completed	NJ DOT	Wegman Construction, Inc.	CMC alternate to VCCs for an MSE wall and embankment support for highway.
NTA - Mullica River Bridge	Port Republic, NJ	10/22/2010	Completed	New Jersey Turnpike Authority	Agate Construction Co., Inc.	2 stage RECO MSE and VSC
I-55 / Mallory Ave. Interchange	Jackson, TN	9/30/2011	Completed	TN DOT	Dement Construction Company	CMC for retaining walls road/roadway
Engle Road SR 4032 Section 802 Bridge Replacement	Beaver, PA	2/24/2009	Completed	PENNDOT	Plum Contracting Inc.	CMCs to support concrete slab foundation for arch culvert and earth embankment for road re-alignment.
Route 78 & GSP - Interchange 142	Hillside, NJ	10/17/2008	Completed	New Jersey DOT	Union Paving & Construction Company, Inc.	CMCs in support of MSE wall on intersection of GSP interchange 142 and Interstate 78 bridge abutments. Special design applied to prevent loading on additional pipes that crosses.
Box Culvert & MSE Wall Support	Carteret, NJ	6/23/2006	Completed	Prologis	Barbelle Construction Services, LLC.	Design build support of a box culvert and MSE wall
Miami-Ode Expressway Authority SR386-15	Miami, FL	8/24/2009	Completed	FLDOT	Condotte America, Inc.	Design build support of MSE embankment

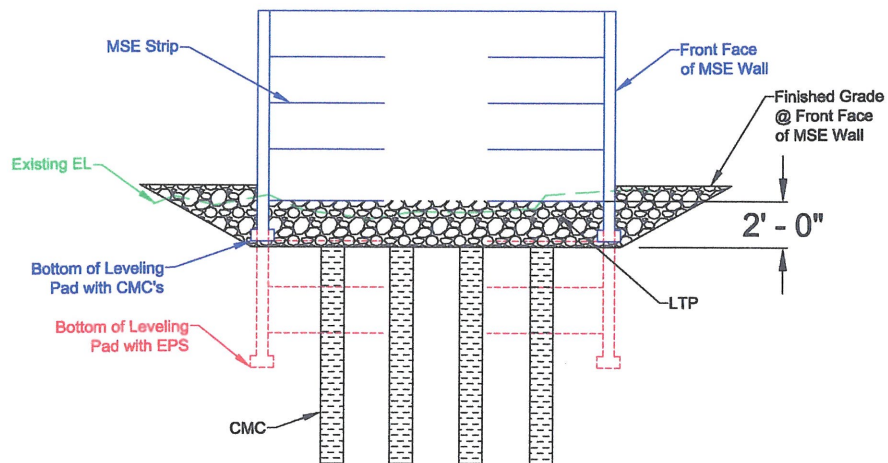
PROPRIETARY and CONFIDENTIAL

Benefits of VEP

Reduce Potential Project Delays

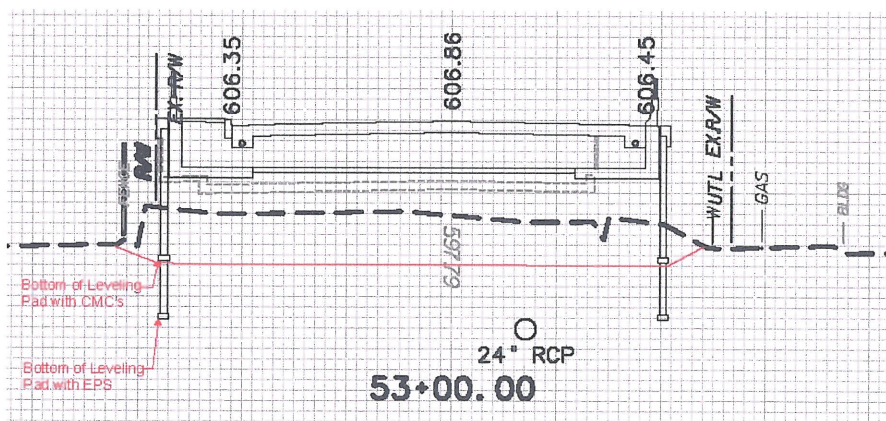
- EPS fill requires excavations up to 10' deep
- VEP decreases excavations to 3' deep
- CMCs produce no spoils (not bringing any soil to surface)
- Reduces amount of disturbed soil
- Reduces potential impacts to archeological and environmentally sensitive areas
- Minimizes risk of project delays during bridge closure period
- Reduces amount of material hauled off-site
- Installation of CMCs will not add time to the project critical path

Benefits of VEP



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Benefits of VEP



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Benefits of VEP

Reduce Long Term Risk and Maintenance by DOH

- EPS is predicted to compress up to 5" over life of structure
 - Potential to cause problems with MSE walls
 - More pavement maintenance required
 - Issues with approach slabs and expansion joints
- EPS is susceptible to hazardous spills (fuels, oils, etc...)
 - May melt or be otherwise compromised
 - EPS manufacturers questioned why there was no protective barrier provided on top of the EPS in the contract plans
- 'Unknown' factor – EPS/MSE integration is unconventional
 - Compression and movement of MSE straps may cause issues
- VEP Eliminates these concerns

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Benefits of VEP

Construction of Conventional MSE Wall

- EPS fill will not support the MSE wall reinforcing elements
 - Parallel walls need to be connected to each other
 - Abutment walls require back up panels
 - Results in more MSE wall material than conventional wall
- VEP eliminates the specialized connections
 - Unistruts at moment slab and abutments are eliminated
 - Special reinforcing strap connections that allow EPS compression are eliminated
 - Parallel walls do not need to be tied together
 - Elimination of back up panels at abutments

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Benefits of VEP

Construction of Conventional MSE Wall

- VEP eliminates the 'unknown' of building a non-conventional MSE Wall
- VEP allows for construction of less total wall area by minimizing required embedment
- VEP has no affect on aesthetics
 - Appearance of final product will be the same

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Summary of Changes

Contract Requirements Affected by VEP

Remove:

- Special Provision 626 – Retaining Wall Systems Expanded Polystyrene (EPS) Geofoam for Use as Lightweight Fill Material

Replaced With:

- Standard Specification 626 – Retaining Wall Systems
Use of bottom ash or fly ash material will not be restricted as select granular backfill material

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Summary of Changes

Plan Details Affected by VEP

- All references to EPS Backfill will be disregarded
- MSE typical section would be modified to reflect standard construction with select granular backfill
 - 8" granular leveling pad would be replaced with load transfer platform
 - Select granular backfill will replace the EPS fill in the reinforced zone. Retained fill will be used outside of the reinforced zone.
 - Conventional MSE panel to reinforcement connection will be used
 - 6" load transfer slab will be eliminated
 - Thickened aggregate base course on top of load distribution slab will be eliminated
 - Moment slabs will be raised and moment slab walls will be eliminated
 - Unistrut connections at moment slab and abutments will be eliminated

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Cost Savings

Existing Contract Items to be Non-Performed:

Item		Description	Qty	Units	Unit Price	Bid Amount
105	307001-000	Aggregate Base Course, Class 1	(2,000)	cy	\$ 40.00	\$ (80,000.00)
565	212004-000	Cofferdam (partial elimination)	(1)	ls	\$ 40,000.00	\$ (40,000.00)
575	601002-001	Class B Concrete (moment slab wall)	(209)	cy	\$ 800.00	\$ (167,200.00)
650	602001-001	Reinforcing Steel Bar	(29,500)	lb	\$ 1.20	\$ (35,400.00)
780	626002-002	MSE Retaining Wall, Reinforced Earth (EPS Backfill)	(25,850)	sf	\$ 105.00	\$ (2,714,250.00)
						\$ (3,036,850.00)

Item Added:

Item		Description	Qty	Units	Unit Price	Bid Amount
		MSE Retaining Wall, Reinforced Earth (Conventional – Including Ground Improvements)				
780	626002-002		23,242	sf	\$ 110.00	\$ 2,556,620.00
						\$ 2,556,620.00

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Cost Savings

Total Savings to Project:

Items Non-Performed	\$3,036,850
Item Added	\$2,556,620

Total Project Savings	\$ 480,230

WV Department of Highways 50% Share	\$240,115
Kokosing Construction 50% Share	\$240,115

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Conclusion

This Value Engineering Proposal:

- Provides a better solution to the underlying soils issues
- Allows for construction of conventional MSE walls
- Decreases archeological and environmental concerns
- Minimizes potential for project delays
- Minimizes long term risks and maintenance
- Saves Money

Thank You!
Questions?

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